

conditions, so as to obtain pre-polymerized catalysts purposed to have good morphology.

In fact, it is believed that after the pre-polymerization, the catalysts increase their resistance in such a way that the tendency to break under polymerization conditions is decreased. As a consequence, also the formation of fine particles would be reduced. In addition, it is hoped that also the bulk density of the final polymers is improved. In principle the catalyst component could be pre-polymerized with any olefin, however, in practice, the non-stereospecific catalysts are always pre-polymerized with ethylene. In fact, in the art it is believed that if prochiral olefins like propylene would be pre-polymerized with non-stereospecific catalyst, the amorphous polymer produced would negatively affect the performance of the catalysts both in terms of activity and morphological properties. The pre-polymerization with ethylene of a non-stereospecific catalyst however does not fully solve the problems mentioned before. In USP 4,325,837 for example, as it is apparent from table 14A and 14B, the use of a non-stereospecific catalyst pre-polymerized with ethylene to an extent of lower than 50% b.w., based on the weight of the total pre-polymerized catalyst, is not always satisfactory because the yields and the morphological properties of the polymer produced with the pre-polymerized catalyst are in certain cases lower than that of the non-pre-polymerized one. In the same patent it is said (column 37 lines 57-60) that the use of a pre-polymerized catalyst is of no advantage with respect to the non pre-polymerized one. In addition to these problems, it must be noted that in view of the very high reactivity of ethylene the pre-polymerization with this monomer can give some difficulties in keeping the mild conditions that are generally used in the pre-polymerization in order to reach the desired properties of the catalyst.--